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The Files

16 June 1958

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ARC Conference - AS-6 Power Supply

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1. On 5 June 1958, a visit was made to the Headquarters of the Atomic Energy Commission, Germantown, Maryland, to discuss the feasibility of anuclear power supply for the AS-6. Participating in the discussions were:

Col. J. L. Armstrong, Chief, Aircraft Reactor Branch, AEC

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2. The AS-6 power problem was explained in detail to Col. Armstrong by [redacted] A 30-pound weight limit for the power supply (including battery) and a completion date of June 1959 were fixed, at least for the purpose of discussion. Col. Armstrong described a small ten-watt thermocouple battery charger which is now under development at Martin. The Westinghouse thermocouple used in this device now has an efficiency of 8% and efficiencies of 15% or 25% are foreseeable in the next few years. Col. Armstrong indicated that the nuclear environment actually improved the thermocouple's efficiency. According to Col. Armstrong, a power source meeting our specifications could be developed by June 1959, if a sufficiently high priority is assigned. A request for this development, or for a 30 to 45 day study, should come from the D/CI to the Chairman of the AEC.

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3. AEC Funds are ordinarily used for equipment developments made on behalf of other government agencies, but other arrangements may be necessary if the short development time increases the cost to beyond what the FY 59 AEC budget can stand. It was suggested that our letter indicate that CIA funds are available to support this program if necessary. Col. Armstrong at first estimated that the development of the device meeting our specifications would probably cost in the vicinity of \$3,000,000 but later modified this figure to about \$2,000,000, and then admitted no realistic estimate is possible without further study. He agreed to determine a probable cost figure by about 26 June. (On 11 June Col. Armstrong notified the writer by telephone that a 29 1/2 lb. device could probably be developed by next spring at a cost of about \$250,000 for the first unit.)

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4. The AEC is willing to develop both elements of the AS-6 power supply, i.e., nuclear charger and the battery, since both units are so closely interdependent. Col. Armstrong described the AEC's experience with failure of nickel cadmium batteries due to imperities and poor quality control. He said that the Radio Corporation in Albuquerque, New Mexico, is a qualified producer of nuclear devices with whom the AEC has worked in the past.

5. Col. Armstrong felt that among the principal problems to be overcome in this development were the extremely high surface temperature of the basic charger, the radiation hazard to the person installing the AS-6, and the one-year life requirement of the power source.

6. It was agreed that a continuing liaison would be set up between this branch and the Aircraft Reactor Branch of the AEC.



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OC-E/R+D-EP/WJS:mjr (16 June 1958)

cc: R+D Subject File

Monthly Report

R+D Lab

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